Claims

We claim:

1. A transformer implemented in an integrated circuit, the transformer comprising:

    a first conducting stripe wound into a first flat spiral on a first layer; and

    a second conducting stripe wound into a second flat spiral on a second layer, the second conducting stripe including at least two segments, each having two terminals, wherein the first and second layers are stacked on top of each other and each of the two terminals of the two segments is coupled together to a connector in the integrated circuit.

2. The transformer as recited in claim 1, wherein the connector is a terminal of a component in the integrated circuit.

3. The transformer as recited in claim 1, wherein the connector is a voltage or a ground of the integrated circuit.

4. The transformer as recited in claim 1, wherein the first conducting stripe includes a center-tap.

5. The transformer as recited in claim 4, wherein the first and second conducting stripes respectively extend to two or more other layers that are stacked with the first and second layers so that inductance of each of the first and second conducting stripes is increased.

6. The transformer as recited in claim 1, wherein a primary winding of the transformer is formed by the first conducting stripe, and a secondary winding of the transformer is formed by the second conducting stripe with the each of the two terminals of the two segments connected together as a center-tap of the secondary winding.

7. The transformer as recited in claim 1, wherein at least one of the first conducting stripe and the second conducting stripe is extended to one or more additional layers to increase inductance thereof

8. A transformer implemented in an integrated circuit, the transformer comprising:

a first conducting stripe wound into a first flat spiral on a first layer;

a second conducting stripe wound into a second flat spiral on at least a second layer;

a third conducting stripe wound into a third flat spiral on at least a third layer; and

wherein the first, second, and third layers are on top of each other, the first, second, and third conducting stripes are electrically not connected, and at least one of the first, second, and third conducting stripes includes a middle connector to be a center-tap.

9. The transformer as recited in claim 8, wherein the first conducting stripe is wound a number of loops around the first flat spiral and includes a middle connector extending across but not electrically connecting to the loops of the first conducting stripe to be a center-tap.

10. The transformer as recited in claim 8, wherein the first conducting stripe extends to the second as well as the third layer to avoid electrical connection to the middle connector on the first layer.

11. The transformer as recited in claim 9, wherein each of the second and third conducting stripes includes a center-tap.

12. The transformer as recited in claim 10, wherein the second conducting stripe extends to the third layer to increase inductance thereof.

13. The transformer as recited in claim 12, wherein the third conducting stripe extends to the second layer to increase inductance thereof.

14. The transformer as recited in claim 8, wherein at least one of the first conducting stripe, the second conducting stripe and the third conducting stripe is extended to one or more additional layers to increase inductance thereof.

15. A method for implementing a transformer in an integrated circuit, the method comprising:

winding a first conducting stripe into a first flat spiral on a first layer; and

winding a second conducting stripe into a second flat spiral on a second layer, the second conducting stripe including at least two segments, each having two terminals, wherein the first and second layers are stacked on top of each other and each of the two terminals of the two segments is coupled together to a connector in the integrated circuit.

16. The method as recited in claim 15, wherein the connector is a terminal of a component in the integrated circuit.

17. The method as recited in claim 15, wherein the connector is a voltage or a ground of the integrated circuit.

18. The method as recited in claim 15, wherein the first conducting stripe includes a center-tap.

19. The method as recited in claim 18, wherein the first and second conducting stripes respectively extend to two or more other layers that are stacked with the first and second layers so that inductance of each of the first and second conducting stripes is increased.

20. The method as recited in claim 15, wherein a primary winding of the transformer is formed by the first conducting stripe, and a secondary winding of the transformer is formed by the second conducting stripe with the each of the two terminals of the two segments connected together as a center-tap of the secondary winding.

21. A method for implementing a transformer in an integrated circuit, the method comprising:

winding a first conducting stripe into a first flat spiral on a first layer;

winding a second conducting stripe wound into a second flat spiral on a second layer;

winding a third conducting stripe wound into a third flat spiral on a third layer; and

wherein the first, second, and third layers are on top of each other, the first, second, and third conducting stripes are electrically not connected, and at least one of the first, second, and third conducting stripes includes a middle connector to be a center-tap.

22. The method as recited in claim 21, wherein the first conducting stripe is wound a number of loops around the first flat spiral and includes a middle connector extending across but not electrically connecting to the loops of the first conducting stripe.

23. The method as recited in claim 22, wherein the first conducting stripe extends to the second or third layer to avoid electrical connection to the middle connector on the first layer.

24. The method as recited in claim 22, wherein each of the second and third conducting stripes includes a center-tap.

25. The method as recited in claim 24, wherein the second conducting stripe extends to the third layer to increase inductance thereof.

26. The method as recited in claim 25, wherein the third conducting stripe extends to the second layer to increase inductance thereof.

27. The method as recited in claim 21, wherein at least one of the first conducting stripe, the second conducting stripe and the third conducting stripe is extended to one or more additional layers to increase inductance thereof.